

# Temporomandibular joint ankylosis in ankylosing spondylitis: A case report and review of literature

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## ABSTRACT

Ankylosing spondylitis (AS) is a chronic systemic inflammatory disorder. It primarily affects the axial skeleton through involvement of the peripheral joint. Ankylosing spondylitis (AS) is a chronic systemic inflammatory disorder. It primarily affects the axial skeleton through involvement of the peripheral joint. Ankylosing spondylitis (AS) is a chronic systemic inflammatory disorder. It primarily affects the axial skeleton through involvement of the peripheral joint. Ankylosing spondylitis (AS) is a chronic systemic inflammatory disorder. It primarily affects the axial skeleton through involvement of the peripheral joint.

**Keywords:** Ankylosis, ankylosing spondylitis, temporomandibular joint

## Introduction

Ankylosing spondylitis (AS) which is also known as Marie-Strumpell disease, is a chronic inflammatory disorder which primarily affects axial skeleton, although peripheral joint involvement can also occur. The male: female ratio is ranging between 2.4:1 and 18:1.<sup>[1]</sup> Different parts of joints affected are synovial, cartilaginous articulations, and the sites of attachment of tendon and ligament to bone.

Temporomandibular joint (TMJ) involvement in AS ranges from 4% to 35%.<sup>[2]</sup> Involvement of TMJ causes pain restrictive movement of joint that cause inability to eat. Although conventional radiography can pick up TMJ involvement, but computer tomography (CT) is required for joint space relations and bony morphology. Here, we are reporting a case of AS with

TMJ involvement and highlights the importance of imaging in this disease, as early diagnosis and treatment can improve the quality of life in these patients.

## Case Report

A 35-year-old male, follow-up of a case of AS diagnosed 5 years back on regular treatment with sulfasalazine, reported to the medicine outpatient department with a history of restricted movement of mouth opening and morning stiffness of jaw for 3 months which was associated with pain and morning stiffness. There was no history of trauma or infection of the TMJ. Physical examination revealed the limitation of spine mobility and Schober's test was positive. There was no neurological deficit. Vertical mouth opening was 10 mm and preauricular tenderness was present.

Investigations showed erythrocyte sedimentation rate 70 mm, C-reactive protein 35, and positive human leukocyte antigen-B27.

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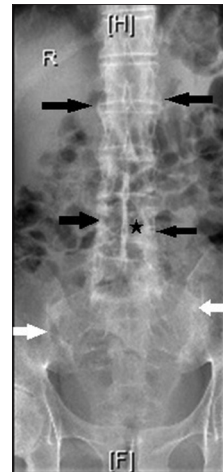
X-ray lumbosacral spine showed ossification within the facet joint capsules, and ligamentum flavum bilaterally produces two vertical linear densities (upper black arrows) at the lateral aspects of the vertebral bodies. There is co-existent ossification within the interspinous-supraspinous ligaments, creating the midline linear opacity (starred) known as dagger sign. Marginal syndesmophyte formation (lower black arrows) is also seen. Furthermore, noted is the complete obliteration of bilateral sacroiliac joint spaces (white arrows) suggestive of bony ankylosis [Figure 1]. Orthopantomogram showed loss of joint space in bilateral TMJ [Figure 2]. Volume rendered CT images of TMJ revealed complete bony ankylosis of the left TMJ [Figure 3]. Diagnosis of AS with TMJ involvement was made and the patient was treated by a combination of conservative techniques that includes including rest, exercises for painful joint, and pharmacological treatment with sulfasalazine 1 g twice daily and indomethacin 50 mg daily. His clinical signs and symptoms did not improve after 1 month of treatment. The patient was advised biological therapy for AS disease activity and later on he was counselled for splint or prosthesis, both of which he refused.

## Discussion

TMJ is the most important joint for mastication. Its involvement in any disease leads to increased morbidity. TMJ is commonly involved in rheumatoid arthritis. Although uncommon, it can be involved in AS as well. Many theories have been postulated for the involvement of TMJ in AS. Davidson *et al.*<sup>[3]</sup> reported that the restricted mouth opening in the patients with AS may be due to the proximity of the chin to the neck. Some authors also reported that difficulty in opening the mouth may be due to the flattening and erosions of the mandibular condyle.<sup>[1]</sup> Wenghoefer *et al.*<sup>[4]</sup> found that the limitation of jaw mobility in such patients might also be caused by an elongation of the mandibular coronoid process. Helenius *et al.*<sup>[5]</sup> had reported that patients experience pain, stiffness, headache, and restricted movements in TMJ. Wenneberg and Kopp<sup>[6]</sup> in 1982 reported that 13% of patients has restricted mouth opening, and 31% had tenderness of the TMJs compared with control group (with 4% having restricted mouth opening and 1% having preauricular tenderness).

Our patient, a case of AS on regular treatment, developed pain, stiffness, and restricted mouth opening was evaluated. CT scan of TMJ showed complete bony ankylosis of the right TMJ. Patient was managed conservatively for a month. However, as there was no improvement, the patient was advised biological therapy for AS disease activity and later on he was counselled for splint or prosthesis, both of which he refused.

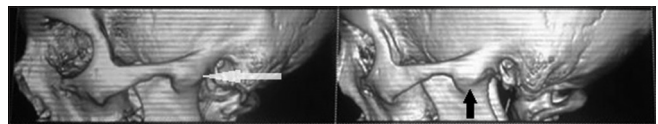
The pathogenesis of TMJ involvement in AS is not clear. Mechanisms have been proposed for the pathogenesis of TMJ involvement in AS. First, there could be destruction of the capsular or disc attachment which can result in internal derangement and degenerative joint diseases. Second, there could be a primary synovitis with direct breakdown of the



**Figure 1:** X-ray lumbosacral spine showing ossification within the facet joint capsules and ligamentum flavum bilaterally produce two vertical linear densities (upper black arrows) at the lateral aspects of the vertebral bodies. There is co-existent ossification within the interspinous-supraspinous ligaments, creating the midline linear opacity (starred) known as dagger sign. Marginal syndesmophyte formation (lower black arrows) is also seen. Furthermore, noted is the complete obliteration of bilateral sacroiliac joint spaces (white arrows) suggestive of bony ankylosis



**Figure 2:** Orthopantomogram showing loss of joint space in bilateral temporomandibular joints



**Figure 3:** Volume rendered computer tomography images of temporomandibular joint revealing complete bony ankylosis of the left temporomandibular joint

articular surfaces. In such a case, internal derangement would result from articular surface changes and not precede them. Hypermobility would result from destruction of capsular attachment. Disc derangement or fibrosis of the capsule could lead to hypomobility.<sup>[2]</sup>

Treatment of TMJ involvement in AS includes nonsteroidal anti-inflammatory drugs (NSAIDs). Patients refractory to NSAIDs are treated with drugs as, corticosteroid, disease-modifying antirheumatic drugs, and biologicals.<sup>[7]</sup> In patients with a painful, reduced mouth opening capacity, the treatment of malfunctions using biofeedback and splint therapy as well as restorative and/or prosthetic rehabilitation is advised.<sup>[1]</sup>

## Conclusion

TMJ involvement in arthritis is more patients with Rheumatoid arthritis. However, patients with AS can also have TMJ involvement. Clinicians should examine the TMJ as well while examining a patient of AS.

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## Conflicts of interest

There are no conflicts of interest.

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